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# TM 11-5820-538-35

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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## DS, GS, AND DEPOT MAINTENANCE MANUAL MAST, AB-577 GRC

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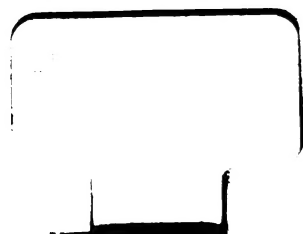
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HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 13 September 1976

**Direct Support, General Support, and Depot Maintenance Manual  
MAST, AB-577/GRC**

TM 11-5820-538-35, 16 January 1969, is changed as follows:

*Page 2.* Paragraph 1-2 is superseded as follows:

**1-2. Reporting of Errors**

The reporting of errors, omissions, and recommendations for improving this publication by the individual is

encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms), and forwarded direct to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703.

*Page 18.* Paragraphs 3-7 and 3-8 are rescinded.

*Page 19.* Paragraph 3-9 and figure 3-2 are rescinded.

By Order of the Secretary of the Army:

Official:

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Chief of Staff*

PAUL T. SMITH  
*Major General, United States Army  
The Adjutant General*

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TECHNICAL MANUAL }  
TM 11-5820-538-35 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D. C. 16 January 1969

**DS, GS, and Depot Maintenance Manual  
MAST AB-577/GRC**

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# CHAPTER 1

## FUNCTIONING OF MAST AB-577/GRC

### Section I. GENERAL

#### 1-1. Scope

a. This manual covers direct support (DS), general support (GS) and depot maintenance for Mast AB-577/GRC. It includes instructions for direct and general support and depot maintenance repairmen for troubleshooting, testing, aligning and repairing equipment, replacing maintenance parts, and repairing specified maintenance parts. The manual also lists tools, materials, and test equipment required for maintenance.

b. The complete technical manual for this equipment includes TM 11-5820-538-12 and TM 11-5820-538-35P.

#### 1-2. Reporting of Equipment Manual Improvements

The reporting of errors, omissions and recommendations for improving this publication by the

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*Note.* For applicable forms and records, see paragraph 1-3, TM 11-5820-538-12.

#### 1-3. Indexes of Publications

a. *DA Pam 310-4.* Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, Changes, or additional publications pertaining to the equipment.

b. *DA Pam 310-7.* Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

### Section II. COMPONENT OPERATION

#### 1-4. Control

Mast AB-577/GRC consists of three groups of items: the mast carrier and launcher (fig. 2-2), a guy bag and contents (fig. 1-1), and a tools and accessories roll and contents (fig. 1-2). These items are so designed that they may all be placed together in a wooden box for storage or transport. When unpacked and assembled (as described in TM 11-5820-538-12), the three groups fit together to form an eight-section antenna support that can be extended as high as 48 feet above the ground, or with Extension Kit, Mast MK-806/GRC as high as 75 feet.

#### 1-5. Mast Carrier and Launcher

a. The mast carrier consists of steel angle bars welded together and designed to fit into the launcher. It houses the eight mast sections which are stacked two across and four deep and are secured in the carrier by a clamp. The mast carrier is secured to the launcher by six catches (three to each side).

b. The launcher (fig. 2-2) consists of steel angle bars that are welded together and designed to contain the mast carrier during storage or

transport. A winch assembly (fig. 2-1) is fastened to a plate which, in turn, is fastened to the launcher by four screws, two at each side. The winch is operated by a handcrank. The winch cable wraps around the reel and runs from the reel, up and over a pulley at the top of the launcher, to the elevator. When the handcrank is turned, the elevator is raised or lowered. The winch reel is locked in position by a lock release lever. A bench level on the side of the launcher is used in determining whether the mast is level. The brake assembly holds the tube sections during and after assembly. The elevator is used to raise or lower the mast sections.

#### 1-6. Guy Bag and Contents (fig. 1-1)

a. The handcrank (2) is placed in the square hole in the winch and turns the reel clockwise or counterclockwise, thereby raising or lowering the elevator.

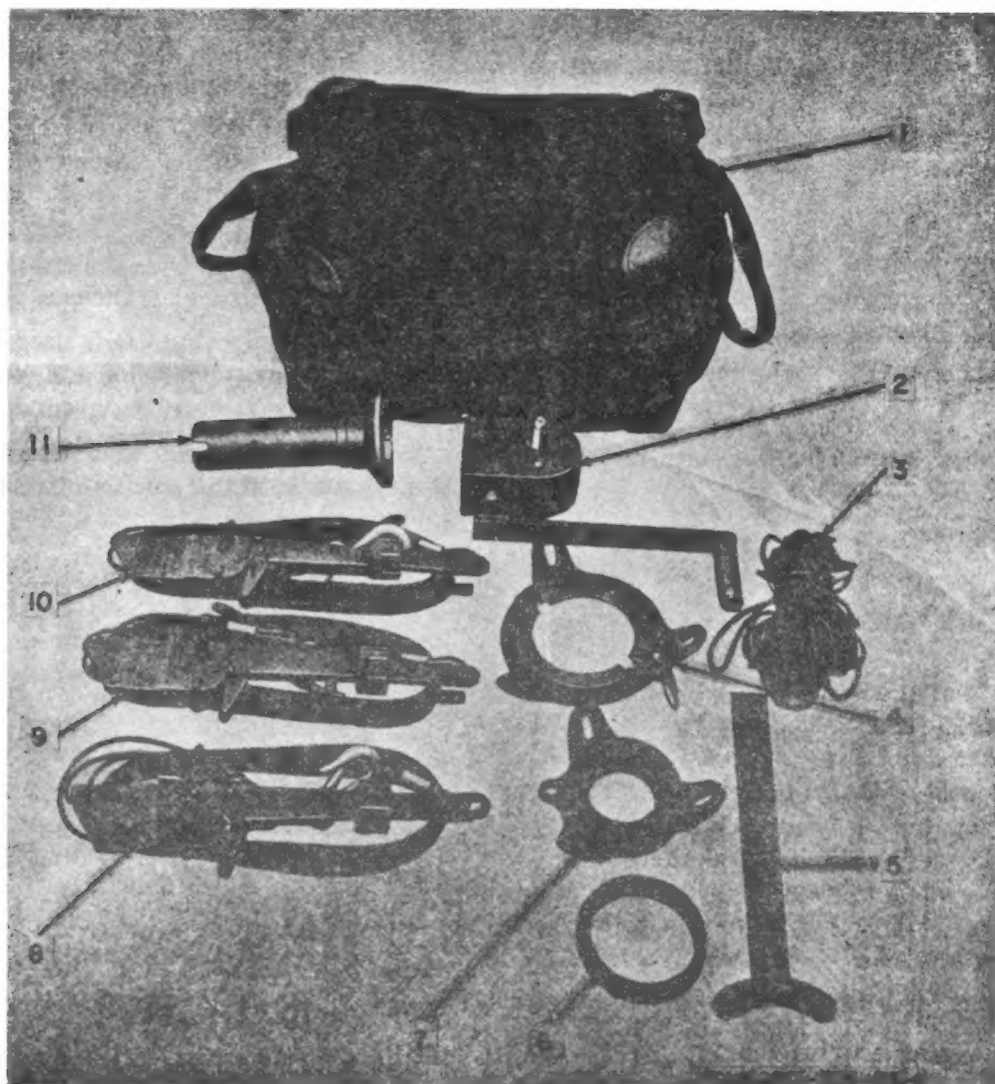
b. An antenna adapter (11) is used as the coupler between the first (top) mast section and a T-bar antenna support such as Support, Antenna AB-957/GRC (TM 11-5820-538-12).

c. The top guy attachment (7) is placed over the antenna adapter. Three 65-foot guy assemblies (10) are fastened to the top guy attachment.

d. The middle guy attachment (4) is used between mast sections 4 and 5. The three 47-foot guy assemblies (9) are fastened to the guy attachment.

e. The three sets of guy assemblies are as follows:

(1) Three 39-foot guy assemblies (fig. 2-7) consisting of cables, snaphooks, and a sliding grip line clamp (snubber) are coded blue. The snap-hook end fastens to the launcher; the second end (snubber end) fastens to the guy anchors or stakes.



- |                                    |                             |                    |                   |
|------------------------------------|-----------------------------|--------------------|-------------------|
| 1 Cotton duck bag                  | A1A20MP1                    | 7 Guy attachment   | A1A20MP2          |
| 2 Handcrank                        | A1A20A21                    | (for top guys)     | A1A20A22A through |
| 3 Antenna halyard                  | A1A20MP5                    | 8 Guy (39 ft)      | A1A20A22C, 8 ea   |
| 4 Guy attachment                   | A1A20MP3                    | 9 Guy (47 ft)      | A1A20A25A through |
| (for center guys)                  | A1A20MP6                    | 10 Guy (65 ft)     | A1A20A25C         |
| 5 Bung wrench                      |                             | 11 Antenna adapter | A1A20A28A through |
| 6 Grooved clamp coupling (coupler) | A1MP3A through A1MP3K, 8 ea |                    | A1A20A28C         |
|                                    |                             |                    | A1A20MP4, 1 ea    |

Figure 1-1. Guy bag and contents.



(2) Three 47-foot guy assemblies consisting of a cable, snaphooks, and a snubber are coded white. The snaphook end fastens to the middle guy attachment and the snubber end to the guy anchors or stakes.

(3) Three 65-foot guy assemblies consisting of a cable, snaphooks, and a snubber are coded red. The snaphook end is fastened to the top guy attachment and the snubber end to the guy anchors or stakes.

f. Eight grooved coupling clamps (couplers) (6, fig. 1-1) are used to join the mast sections.

g. The antenna halyard (radius rope) (3) is an 81-foot long piece of polyester rope for measuring the distance when positioning the guy anchors or stakes.

h. The bung wrench (5) is used on the base of the launcher to turn (rotate) the entire mast.

i. The canvas guy bag (1) has closing straps and two strap handles and is made large and strong enough to hold the items listed in *a* through *h* above.

#### **1-7. Tools and Accessories Roll and Contents** (fig. 1-2)

a. Three screw-type guy anchors (5) are in-

serted in the ground as shown in figures 2-7 and 2-8, TM 11-5820-538-12 for normal soil conditions. The guy assemblies are fastened to these anchors.

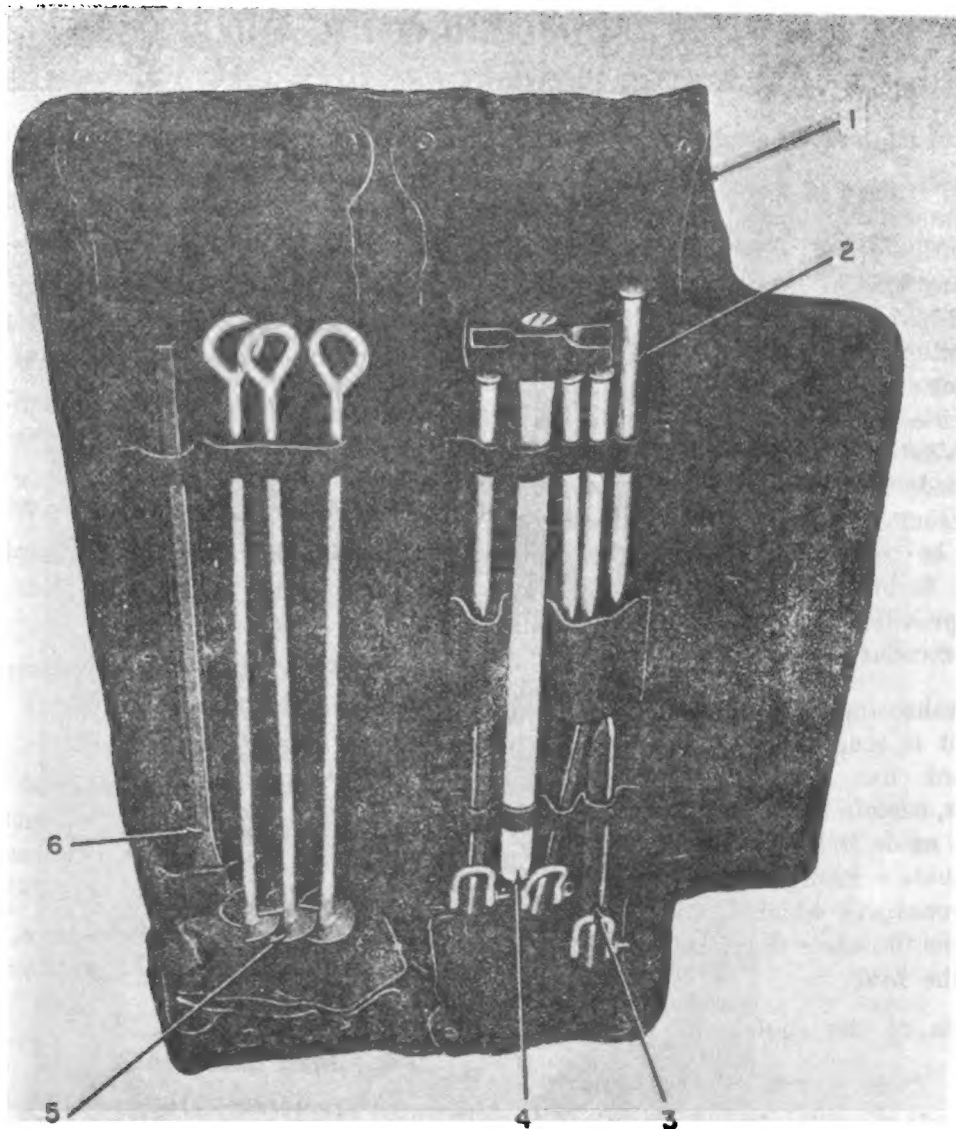
b. Three Guy Stakes GP-112/U (3) are used if the ground is composed of shale, sandstone, soft rock, or ice. They are driven into the ground by a sledge hammer as shown in figure 2-8, TM 11-5820-538-12. The guy assemblies are fastened to these GP-112/U's.

c. Three Stakes GP-2 (2) keep the launcher from slipping during erection (fig. 2-17 1 TM 11-5820-538-12) and hold the launcher in position when erected (fig. 2-17 6 TM 11-5820-538-12).

d. The hand hammer (sledge hammer) (4, fig. 1-2) is used to drive the stakes in the ground and to straighten bent anchors or stakes.

e. The digging bar (6) is used in leveling the launcher during erection and in placing the screw-type anchors in the ground.

f. The canvas tools and accessories roll (1) is designed so that each item listed in *a* through *e* above has a place.



TM5820-538-35-2

- |                               |                   |
|-------------------------------|-------------------|
| 1 Tools and accessories roll  | A1A19MP1          |
| 2 Guy Stake GP-2              | A1A19MP4A through |
|                               | A1A19MP4D         |
| 3 Guy Stake GP-112/U          | A1A19MP5A through |
|                               | A1A19MP5C         |
| 4 Hand hammer (sledge hammer) | A1A19MP3          |
| 5 Guy anchor                  | A1A19MP2A through |
|                               | A1A19MP2C         |
| 6 Digging bar                 | A1A19MP6          |

*Figure 1-2. Tools and accessories roll and contents.*

## CHAPTER 2

# DS AND GS TROUBLESHOOTING AND REPAIRS

### 2-1. Scope of DS and GS Maintenance

a. Troubleshooting at direct and general support maintenance categories includes all the techniques outlined for organizational maintenance, plus any special or additional techniques required to isolate a defective part. The DS and GS maintenance techniques are not complete in themselves but supplement the procedures described in organizational maintenance (TM 11-5820-538-12). The systematic troubleshooting procedure, which begins at the organizational category with operational and sectional checks, must be completed by further localizing and isolating techniques. Paragraphs 2-3 and through 2-7 provide DS and GS troubleshooting and repair procedures for this equipment.

b. Troubleshooting may be performed while the equipment is erected or, if necessary, after the equipment has been dismantled. When trouble occurs, certain observations and measurements can be made that will help determine the source of trouble. Paragraph 2-3 describes the systematic procedures which will enable maintenance personnel to isolate the cause of the trouble and correct the fault.

c. No tests of the equipment are required after repair.

### 2-2. Test Equipment, Tools and Materials

- a. Tool Kit Electronic Equipment TK-100/G.
- b. Tool Kit Electronic Equipment TK-105/G.

### 2-3. Troubleshooting

a. Check the framework of the mast carrier and the launcher for bends and dents or broken and cracked welds. Repair or replace a damaged mast base (para 2-4) or mast carrier (para 2-5).

b. Check the eight mast sections for bends, dents, scratches, or cracks. Replace a defective mast section.

c. Check the operation of the handcrank and winch for smoothness of operation. If operation is faulty, replace the defective part. Replace the snap slide fastener (7, fig. 2-1) if it has

lost its spring tension. Check the square shaft of the gear assembly to see that it has not been distorted or twisted. Replace the gear assembly if the square shaft is not true.

d. Check the elevator for smoothness of operation. If operation is faulty, repair or replace parts as necessary (para 2-4c).

e. Check the brake assembly operation. If slippage or buckling of the mast section occurs, adjust the brake (para 2-4e). Replace the brake shoe assembly, if necessary (para 2-4d).

f. Check the antenna adapter and top and middle guy attachments for dents, bends or cracks (para 2-6b).

g. Check the nine guy assemblies for kinks, bends, and fraying, and check the snubbers for smooth operation (para 2-6c).

h. Check the operation of the couplers by placing two mast sections together with a coupler. It should hold the sections securely. If the coupler does not operate correctly, replace it.

i. Check the guy anchors and stakes for bends. If they are bent or damaged, straighten or replace them.

### 2-4. Mast Base Repair

a. *Launcher.* Inspect the mast base (launcher) frame for dents, bends, or broken welds. Straighten minor dents or bends with the sledge hammer. If welds are cracked or broken, re-weld them. Check the surfaces for scratches to the paint, rust marks, blisters, etc. If necessary, clean the surface with sandpaper or a grinding wheel, then paint the area (TB SIG 364).

b. *Removal and Replacement of Winch Cable.*

(1) Lower the elevator to the bottom of the launcher.

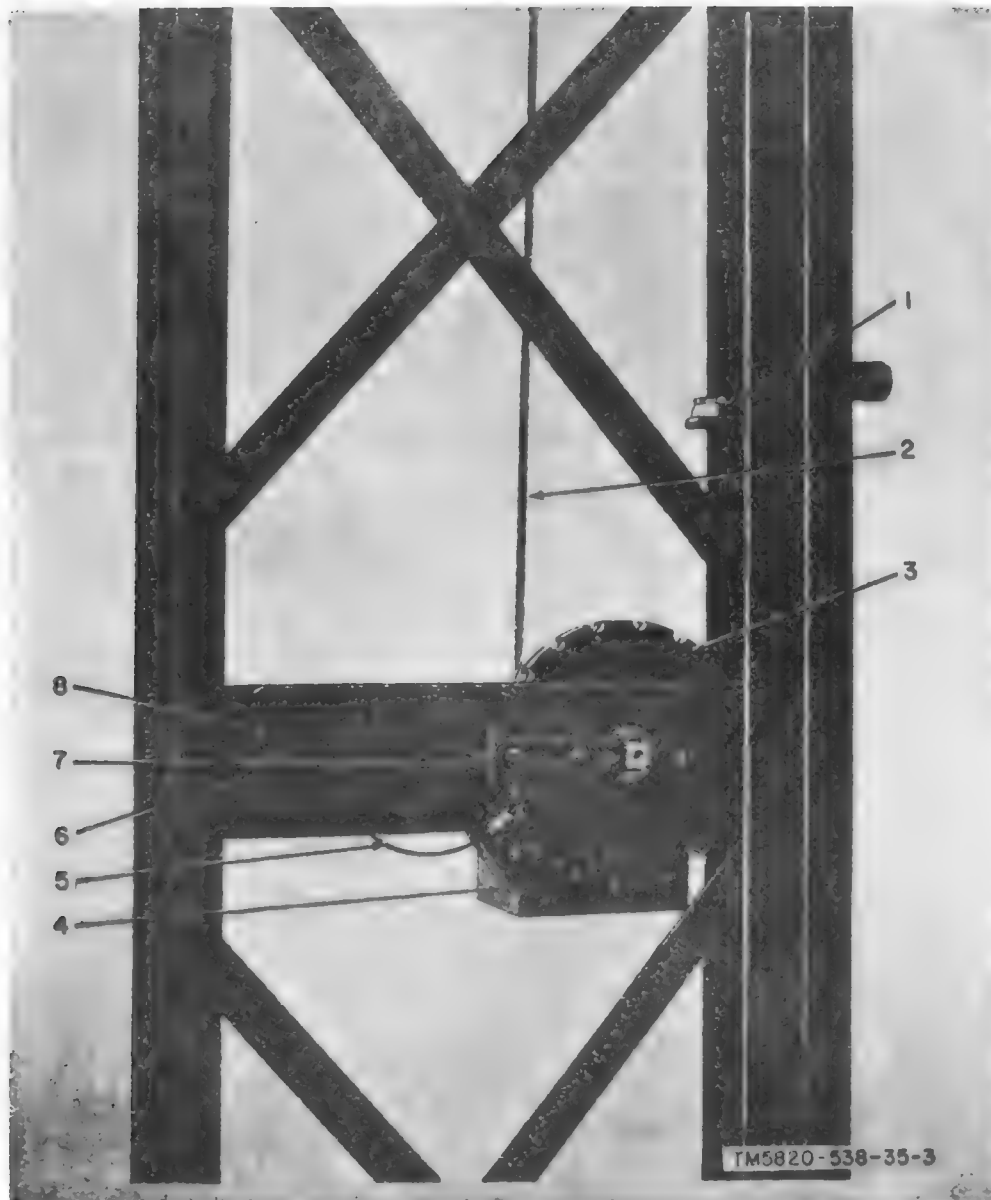
(2) Cut the winch cable (2, fig. 2-1).

(3) Remove the bolt and nut (23 and 24, fig. 2-4), releasing one end of the cable; remove the cable.

(4) Move the snap fastener (7, fig. 2-1), to free the handcrank shaft.

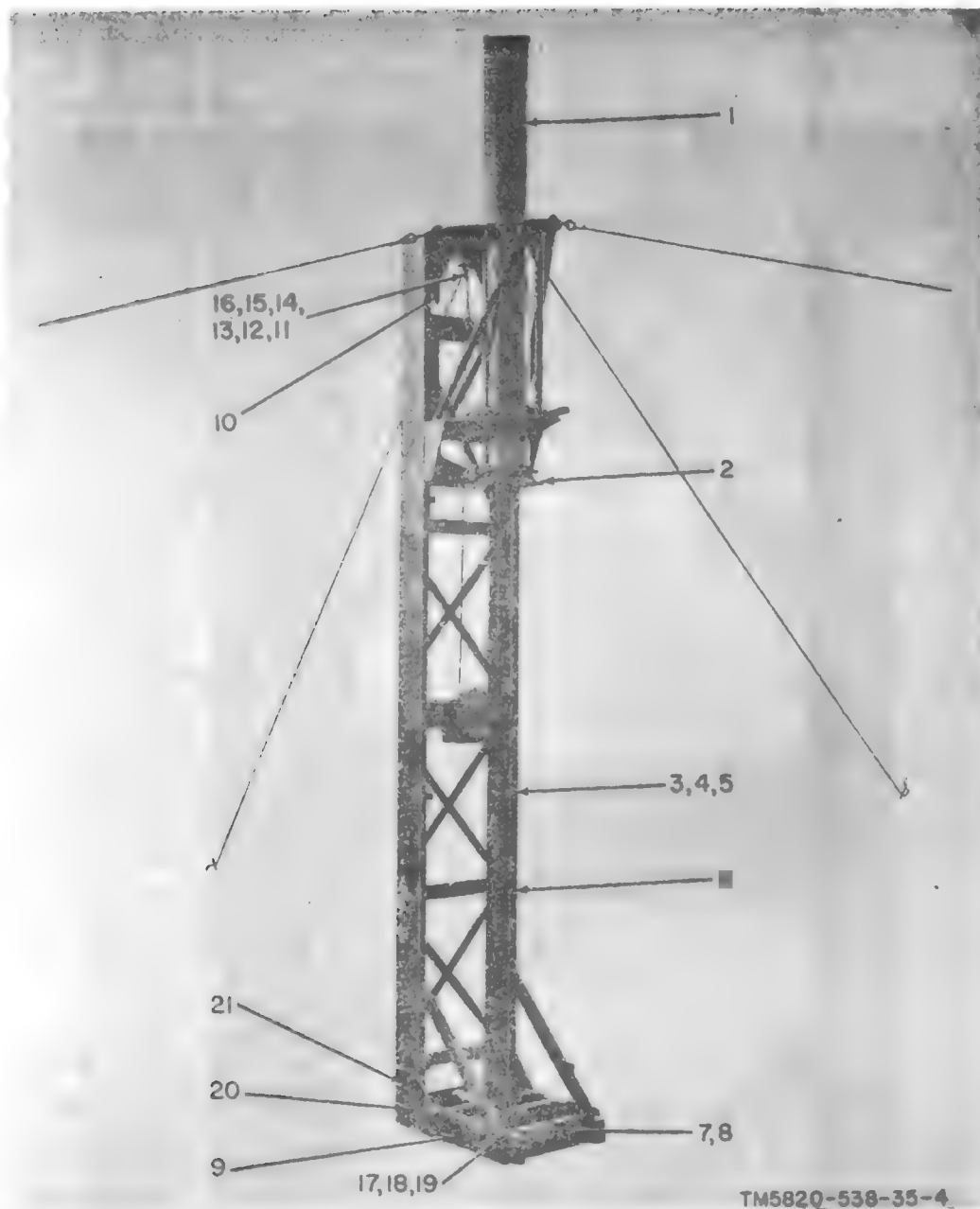
(5) Remove the gear assembly (1, fig. 2-6).  
 (6) Remove the four screws (8, fig. 2-1),  
 freeing the winch assembly.

(7) Remove the two screws at the right end  
 of the winch assembly that hold the two plates  
 together (6, fig. 2-1).



- |   |                 |
|---|-----------------|
| 1 Bench level                                       | A1A2MP23        |
| 2 Single-leg, wire-rope as-<br>sembly (winch cable) | A1A2A4R5A6      |
| 3 Grooved pulley                                    | A1A2A4A5MP1     |
| 4 Release lock lever                                | A1A2A4A7        |
| 5 Single-leg, wire-rope assembly                    | A1A2A4A8        |
| 6 Retaining plate                                   | A1A2A4MP1, 2 ea |
| 7 Snap slide fastener                               | A1A2A4MP5       |
| 8 Machine screw                                     | A1A2A4H1, 4 ea  |

Figure 2-1. Winch assembly parts.



TM582Q-538-35-4

- |                              |                        |                               |                        |
|------------------------------|------------------------|-------------------------------|------------------------|
| 1 Mast section               | A1MP1A through A1MP1H  | 11 Groove pulley              | A1A2MP16               |
| 2 Antenna elevator           | A1A2A12                | 12 Machine bolt               | A1A2MP16H1             |
| 3 Catch strike               | A1A2MP17A through      | 13 Flat washer                | A1A2MP16H1, A1A2MP16H2 |
|                              | A1A2MP17D              | 14 Flat washer                | A1A2MP16H1             |
| 4 Machine screw              | A1A2MP17H1, A1A2MP17H2 | 15 Sleeve spacer              | A1A2MP16H1             |
| 5 Self-locking hexagonal nut | A1A2MP17H1, A1A2MP17H2 | 16 Self-locking hexagonal nut | A1A2MP16H1             |
| 6 Frame assembly             | A1A2A3                 | 17 Machine bolt               | A1A2MP16H1             |
| 7 Identification plate       | A1A2MP24               | 18 Flat washer                | A1A2MP2H1              |
| 8 Drive screw                | A1A2MP24H1 through     | 19 Self-locking hexagonal nut | A1A2MP2H1              |
|                              | A1A2MP24H4             | 20 Machine screw              | A1A2MP2H1              |
| 9 Mast base subassembly      | A1A2MP1                | 21 Machine screw              | A1A2MP2H1A             |
| 10 Claw bar                  | A1A2MP21               |                               |                        |

Figure 2-2. Mast base (launcher) parts.

(8) Separate the plates, and remove the grooved pulley (3).

(9) Slide the end of the winch cable out of the grooved pulley.

(10) Put the elevator end through the pulley of a new winch cable (11, fig. 2-2).

(11) Slide the ball at the second end of the winch cable into the groove in the pulley.

(12) Reverse the procedures in (3) through (8) above.

(13) Check the operation by raising and lowering the elevator.

*c. Removal and Replacement of Elevator and Parts.*

(1) Remove the twelve screws (20, fig. 2-2) (six on each side of the base).

(2) Remove the four bolts, washers, and nuts (17, 18, and 19).

(3) Remove two screws (21) at the rear of the base. The base is now free from the launcher frame.

(4) Slide the elevator out of the frame assembly (6).

(5) Remove the two retaining rings (6, fig. 2-3) and the one flat washer (5) which holds the wheel on the elevator.

(6) Remove the headless grooved pin (4) and the metal wheel (3).

(7) Remove the bolt and nut (9 and 10).

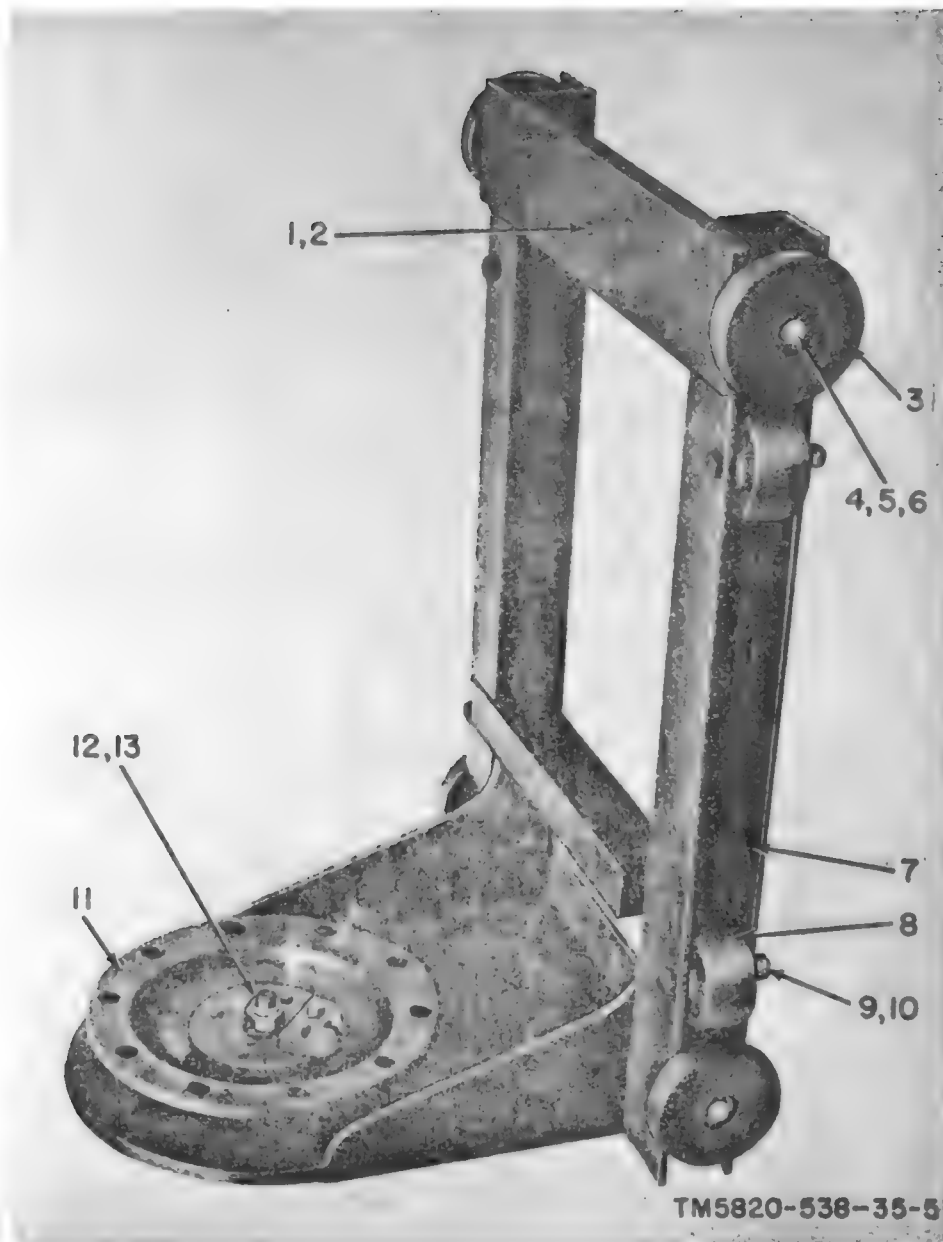
(8) Remove the solid wheel (8) which is now free.

(9) Remove the nut and bolt (13 and 12).

(10) Remove the flagstaff socket (11).

(11) Reverse the procedure in (1) through (10) above to reassemble the elevator.





- |    |                            |                     |
|----|----------------------------|---------------------|
| 1  | Machine bolt               | A1A2A12H1           |
| 2  | Plain hexagonal nut        | A1A2A12H1           |
| 3  | Metal wheel                | A1A2A12MP4A through |
| 4  | Headless grooved pin       | A1A2A12MP4D         |
| 5  | Flat washer                | A1A2A12MP4AH1, 4 ea |
| 6  | Retaining ring             | A1A2A12MP4AH1, 4 ea |
| 8  | Solid wheel                | A1A2A12MP1          |
| 9  | Machine bolt               | A1A2A12MP2A through |
| 10 | Self-locking hexagonal nut | A1A2A12MPD          |
| 11 | Flagstaff socket           | A1A2A12MP2AH1, 4 ea |
| 12 | Machine bolt               | A1A2A12A13          |
| 13 | Self-locking hexagonal nut | A1A2A12A13H1        |
|    |                            | A1A2A12A13H1        |

Figure 2-3. Antenna elevator parts, elevator removed from launcher.

**d. Removal and Replacement of Brake Shoe.**

- (1) Release the brake by pulling the handle.
- (2) Remove all mast sections.
- (3) Remove the nut and bolt (21 and 20, fig. 2-4).
- (4) Remove the damaged shoe-type brake (brake shoe) (22).
- (5) Place a good brake shoe in place.
- (6) Replace the nut and bolt that were removed in (3) above.
- (7) Adjust the brake (*e* below).

**e. Brake Adjustment.**

- (1) Place a mast section in the brake (fig. 2-4).
- (2) Close the brake as shown in figure 2-4.
- (3) Place the hook of a 50-pound scale (that is, John Chatillon and Sons, Type 100) in the hole of the brake handle.

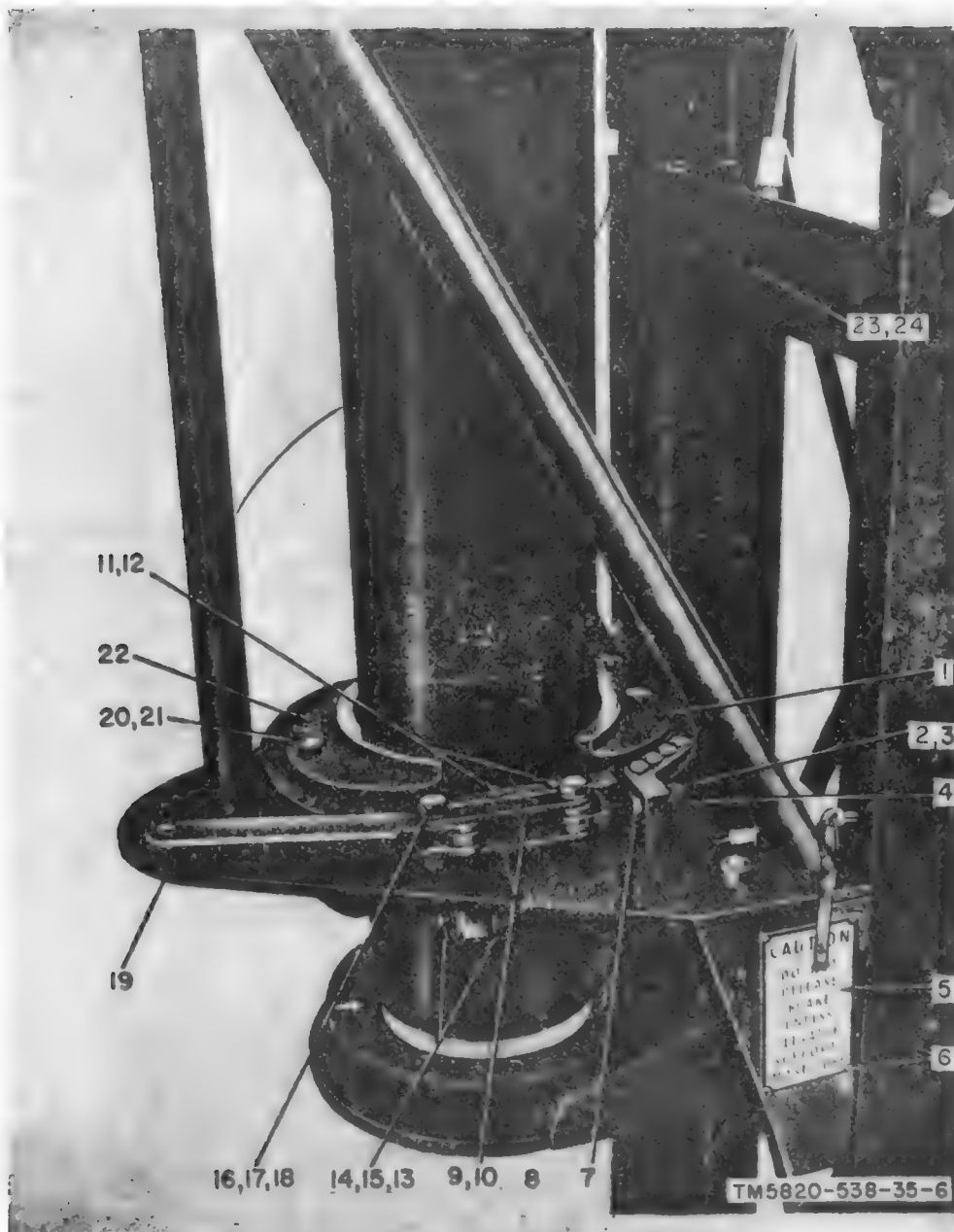
(4) Pull the scale away from the brake handle, and note the reading at which the brake opens. If this reading is not approximately 30, continue as follows:

(5) Loosen the plain hexagonal nut (7, fig. 2-4).

(6) If the reading is less than 30 in (4) above, turn the self-locking hexagonal nut (2) clockwise one-half revolution, tightening the brake pressure. If the reading is greater than 30 in (4) above, turn the nut counterclockwise, loosening the brake pressure.

(7) Tighten the nut that was loosened in (5) above.

(8) Repeat the procedures in (4), (5), and (6) above until the reading is approximately 30 in (4) above.



- |                              |                    |                               |             |
|------------------------------|--------------------|-------------------------------|-------------|
| 1 Shoe-type brake            | A1A2A9MP1          | 14 Headless grooved pin       | A1A2MP8AH1  |
| 2 Self-locking hexagonal nut | A1A2MP11H1         | 15 Retaining ring             | A1A2MP8AH1, |
| 3 Flat washer                | AN960C516          |                               | A1A2MP8AH2  |
| 4 Eye bolt                   | A1A2MP11H1         | 16 Machine bolt               | A1A2MP11H1, |
| 5 Instruction plate          | A1A2MP13           | 17 Cotter pin                 | A1A2MP11H2  |
| 6 Drive screw                | A1A2MP13H1 through |                               | A1A2MP11H1, |
|                              | A1A2MP13H4         |                               | A1A2MP11H2  |
| 7 Plain hexagonal nut        | A1A2MP11H3         | 18 Plain hexagonal nut        | A1A2MP11H1, |
| 8 Retaining shaft plate      | A1A2MP9            |                               | A1A2MP11H2  |
| 9 Anchor brake shoe link     | A1A2MP11A          | 19 Handle                     | A1A2MP10    |
| 10 Anchor brake shoe link    | A1A2MP11B          | 20 Machine bolt               | A1A2A9MP2H1 |
| 11 Machine screw             | A1A2MP9H1,         | 21 Self-locking hexagonal nut | A1A2A9MP2H1 |
|                              | A1A2MP9H2          | 22 Shoe-type brake            | A1A2A10     |
| 12 Lockwasher                | A1A2MP9H1,         | 23 Machine bolt               | A1A2A12H1   |
|                              | A1A2MP9H2          | 24 Plain hexagonal nut        | A1A2A12H1   |
| 13 Material handling roller  | A1A2MP8A through   |                               |             |
|                              | A1A2MP8D           |                               |             |

Figure 2-4. Brake assembly parts.

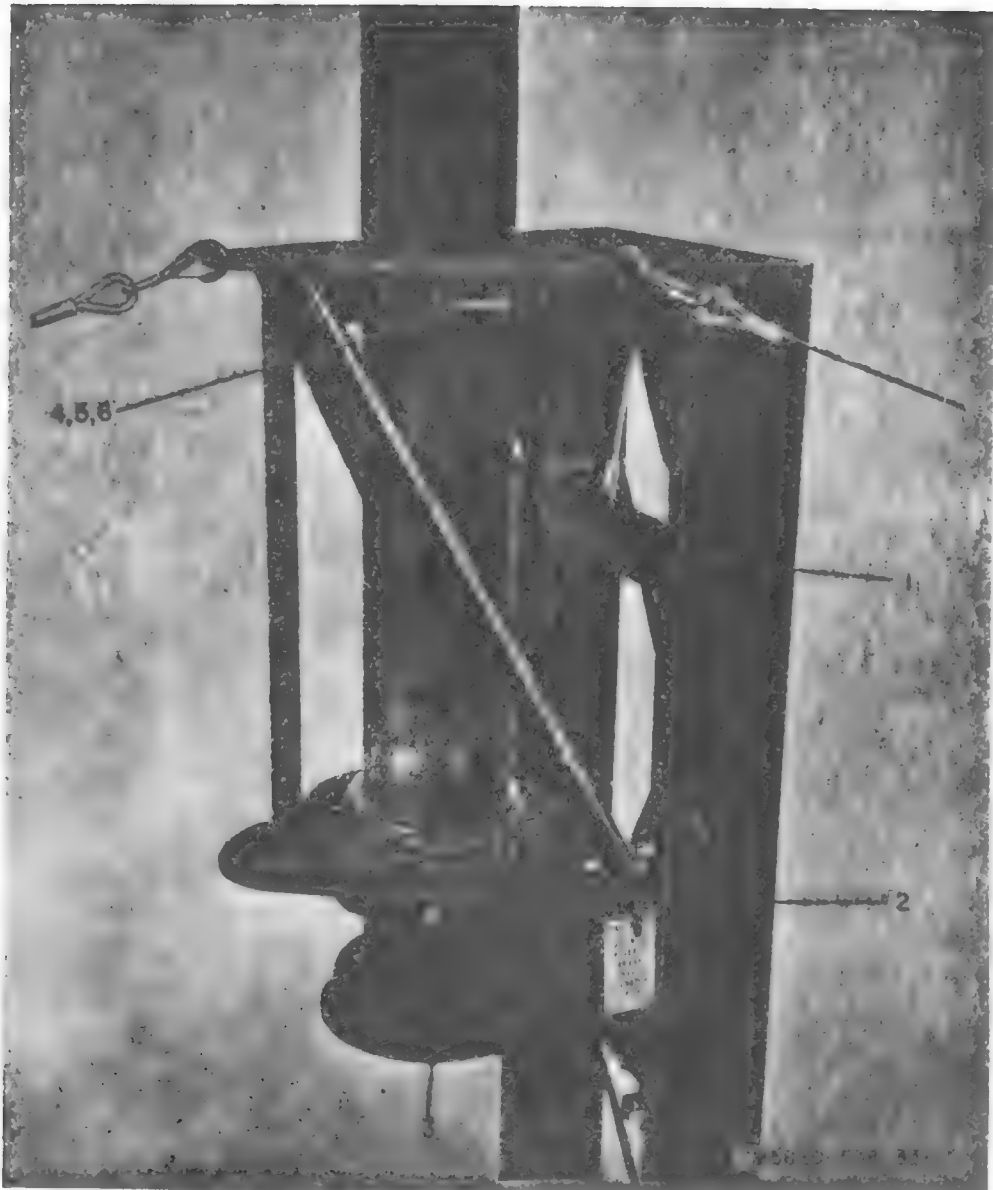
**f. Replacement of Material Handling Roller.**

- (1) Remove two retaining rings (6, fig. 2-5), one from each side of the pin.
- (2) Remove the headless grooved pin (5).
- (3) Remove the damaged material handling roller.

(4) Put a new roller in place of the damaged one.

(5) Slide the pin that was removed in (2) above through the hole in the bracket and through the roller.

(6) Replace the two retaining rings (6).



- |  |                        |
|--|------------------------|
| 1 Elevator frame                                     | A1A2A12MP1             |
| 2 Guide assembly                                     | A1A2MP6                |
| 3 Antenna elevator                                   | A1A2A12                |
| 4 Material handling roller A1A2MP8E through A1A2MP8H |                        |
| 5 Headless grooved pin                               | A1A2MP8EH1             |
| 6 Retaining ring                                     | A1A2MP8EH1, A1A2MP8EH2 |

**Figure 2-5. Mast base (launcher) parts, top section.**

## **2-5. Mast Carrier Repair**

a. Inspect the frame of the mast carrier for dents, bends, or broken welds. Straighten minor bends or dents. If welds are cracked or broken, reweld them. Check the painted surfaces for scratches, rust, or blisters. If necessary, clean the surface with sandpaper or a grinding wheel and paint the area (TB SIG 364).

b. Check the operation of the six latches to see that they hold the carrier securely to the launcher. If the latches are defective, repair or replace them.

## **2-6. Guy Bag and Contents Maintenance**

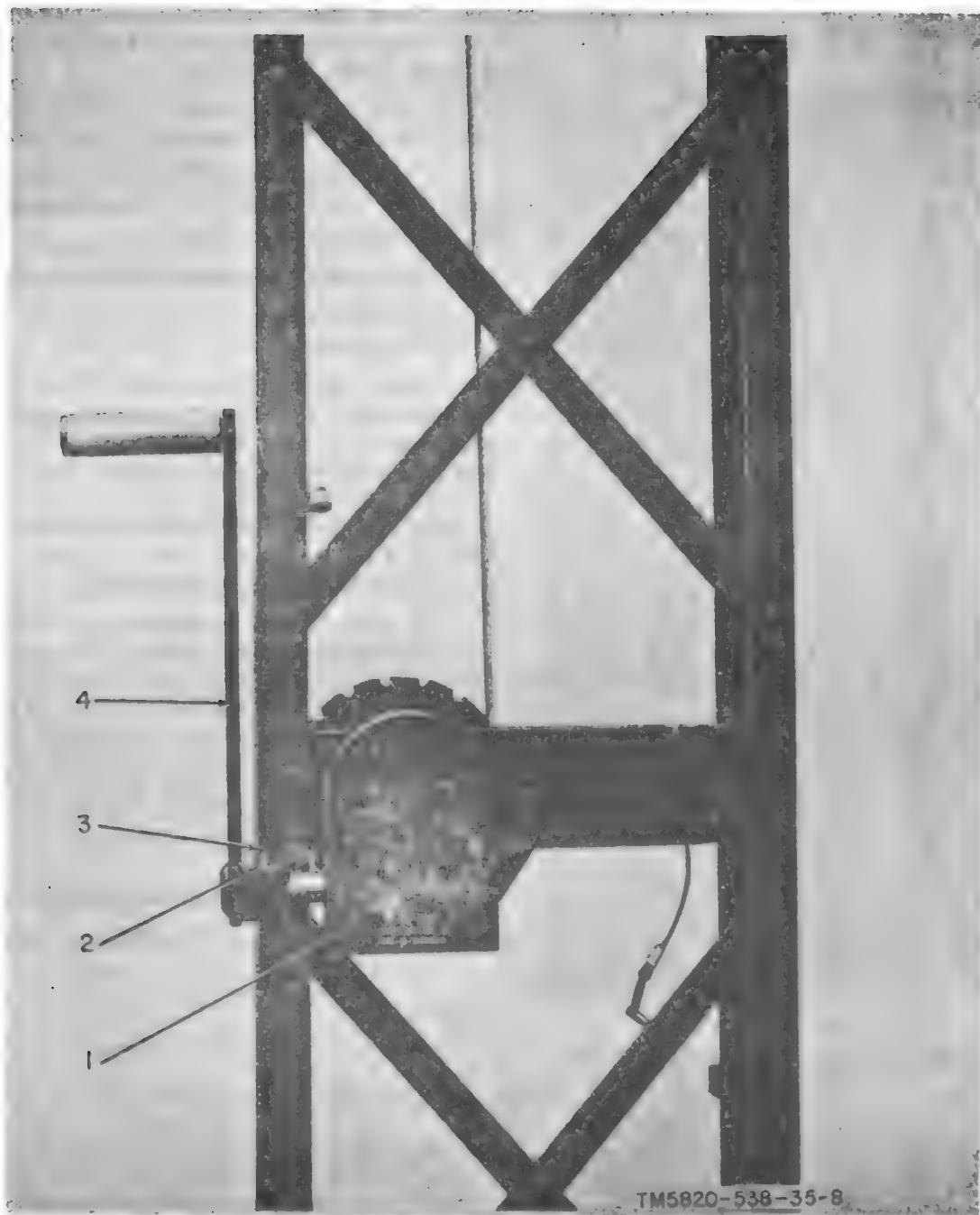
a. Check the gear assembly (1, fig. 2-6) for smoothness of operation. Binding may be caused by the improper winding of the cable on the reel or over the pulley. To correct binding, re-

wind and straighten the cable. If the gear assembly does not turn, replace it.

b. Check the antenna adapter (11, fig. 1-1) and the top and middle guy attachments (7 and 4) for dents, scratches, or rust. Straighten dents; remove scratches or rust with sandpaper, and touchup paint (TB SIG 364). Replace any item that is defective.

c. Check the nine guy assemblies (fig. 2-7). Make sure the cables are free of kinks, severe bends, and fraying. Check the snaphooks and snubbers to see that they operate smoothly and are in good working condition. Check the swaging sleeves (3 and 8) to see that the rope thimbles (4 and 7) are inside. Replace the guy assembly if any part is defective.

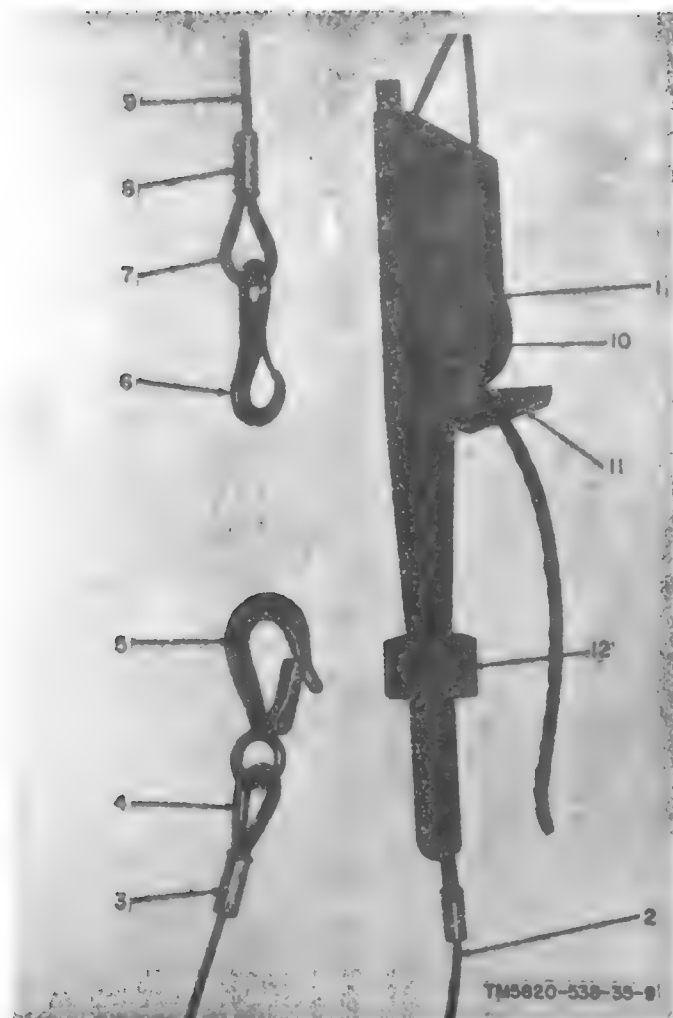
d. Check the eight grooved clamp couplings (couplers) (6, fig. 1-1) for smoothness of operation. Replace any defective couplers.



- |   |                            |               |
|---|----------------------------|---------------|
| 1 | Gear assembly              | A1A20A21MP1   |
| 2 | Self-locking hexagonal nut | A1A20A21MP2H1 |
| 3 | Machine bolt               | A1A20A21MP2H1 |
| 4 | Handle                     | A1A20A21MP2   |

*Figure 2-6. Handrank parts.*





- |                                  |                   |
|----------------------------------|-------------------|
| 1 Sliding grip line clamp        | A1A20A22A24       |
| 2 Single-leg, wire-rope assembly | A1A20A22A23       |
| 3 Swaging sleeve                 | A1A20A22A23MP2    |
| 4 Rope thimble                   | A1A20A22A23MP3    |
| 5 Snaphook                       | A1A20A22A23MP4    |
| 6 Snaphook                       | A1A20A22MP2       |
| 7 Rope thimble                   | A1A20A22MP3, 2 ea |
| 8 Swaging sleeve                 | A1A20A22MP4, 2 ea |
| 9 Steel wire rope                | A1A20A22MP1       |
| 10 Cam handle                    |                   |
| 11 Latch                         |                   |
| 12 Nut                           |                   |

Figure 2-7. Guy assembly parts.

e. Check the condition of the antenna hal-yard (radius rope) (3, fig. 1-1). If it is frayed or badly worn, replace it.

f. Check the bung wrench (5) for bends or cracks in the metal. Replace it if it is damaged.

g. Check the cotton duck bag (1) for tears, holes, and wear. Mend or patch the holes; replace the bag if it is worn.

## 2-7. Tools and Accessories Roll and Contents

### Maintenance

(fig. 1-2)

a. Check the condition of the items listed in (1) through (5) below for bends and wear; sandpaper and paint (TB SIG 364) as necessary. Straighten bent items, or replace them.

(1) Three screw-type guy anchors (5, fig. 1-2).

(2) Three Stakes GP-112/U (3).

(3) Four Stakes GP-2 (2).

(4) Sledge hammer.

(5) Digging bar (6).

b. Check the tools and accessories roll (1) for tears, holes, and wear. Mend or patch the holes or replace the roll if it is worn.

## CHAPTER 3

### DEPOT OVERHAUL STANDARDS

#### 3-1. Applicability of Depot Overhaul Standards

The tests outlined in this chapter are designed to measure the performance capability of a repaired equipment. Equipment that is to be returned to stock should meet the standards given in these tests.

#### 3-2. Applicable References

*a. Repair Standards.* Applicable procedures of the depot performing this test and the general standards for repaired equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirements for testing this equipment.

*b. Technical Publications.* The technical publications applicable to the equipment to be tested are TM 11-5820-538-12 and TM 11-5820-538-35P.

*c. Modification Work Orders.* Perform all modification work orders (MWO's) applicable to this equipment before making the tests specified. DA Pam 310-7 lists the current MWO's.

#### 3-3. Equipment Required for Depot Testing

The items listed in the chart below are required for depot testing.

<i>Item</i>	<i>Common name</i>
Dynamometer, Dillon Part No. AN26996	Dynamometer
Turnbuckle, Bremer-Tichner Type 518 × 12.	Turnbuckle
Protractor, commercial 50-lb scale, John Chatillon and Sons, Type 100.	Protractor Scale
Government Gages: 324347 324350 324352 324357 324361 324362	Gage

#### 3-4. Visual Inspection

Inspect the following items for bends, warping, broken welds, loose rivets, scratches and rust, frayed cable or rope, and tears in cotton duck material.

- a.* Carrier.
- b.* Mast base.
- c.* Winch assembly.
- d.* Brake assembly.
- e.* Elevator assembly.
- f.* Handcrank.
- g.* Guy attachments.
- h.* Antenna adapter.
- i.* Mast sections.
- j.* Couplers.
- k.* Guy assemblies.
- l.* Radius rope.
- m.* Bung (spanner) wrench.
- n.* Anchors.
- o.* Guy stakes.
- p.* Digging bar.
- q.* Sledge hammer.
- r.* Guy bag.
- s.* Tools and accessories roll.

#### 3-5. Brake Test (fig. 3-1)

- a.* Place the launcher in a horizontal position.
- b.* Place a mast section in the launcher, and close the brake.
- c.* Place the hook of a 50-pound scale in the hole of the brake shoe.
- d.* Pull the scale away from the brake. The scale meter should indicate approximately 30 pounds. Remove the scale.
- e.* Attach a wire cable from a stationary beam to the turnbuckle, and attach the second end of the turnbuckle to the dynamometer as shown in figure 3-1.
- f.* Attach a wire cable from the second end of the dynamometer through the mast section, and tie the cable around the steel bar that is on the end of the antenna adapter so that the load is applied axially to the brake.
- g.* Tighten the turnbuckle until the dynamometer indicates 500 pounds. There should be no slippage of the mast section.
- h.* Refer to paragraph 2-4e for brake adjustment.

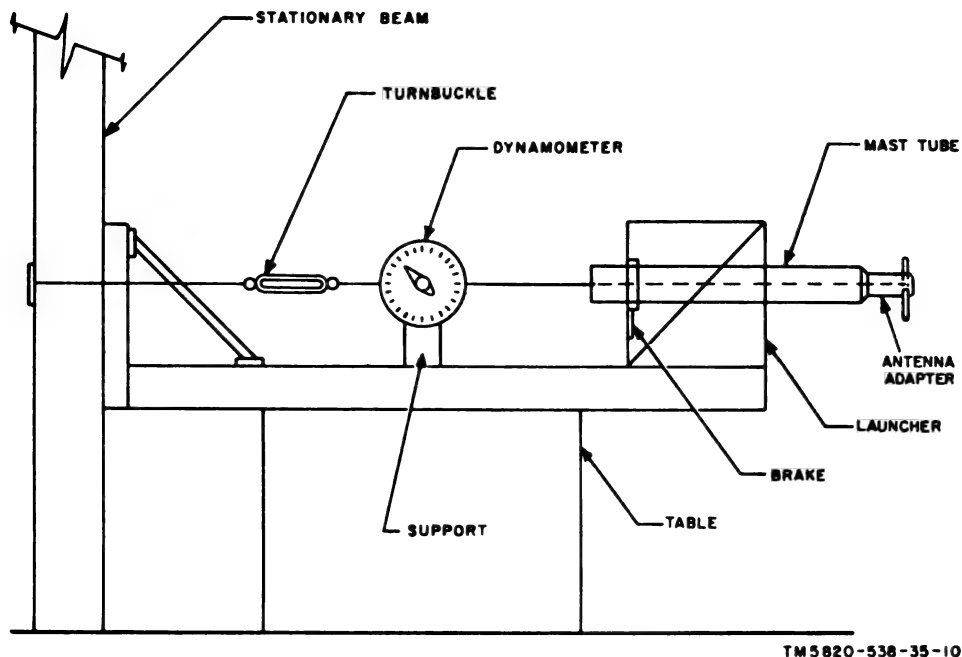


Figure 3-1. Brake test setup.

### 3-6. Mast Section Coupling Test

- a. Place two mast sections end to end.
- b. Place a coupling around the two mast sections.

*Note.* Use a 1/8-inch thick shim between the coupling and the locating pin. on the gage in *c* below. As pressure is applied, the shim is removed so that there is no contact between the coupling and the pin.

- c. Measure the coupling closing pressure on the smaller end of Government Gage #324361. The pressure should be a minimum of 2 pounds.

- d. Measure the coupling closing pressure on the larger end of the gage. It should be a maximum of 75 pounds.

### 3-7. Interchangeability Test

- a. Mating dimensions of the mast section ends and the coupling are verified with Government Gages #324357 and #324352.
- b. Mounting dimensions of the winch assembly are verified with Government Gage #324347.
- c. The outside diameter of the mast cap is

verified with mast cap go and no-go rings, Government Gages #324350 and #324362.

### 3-8. Torsion Transfer Test

- a. Couple the eight mast sections together with the couplings, and lay the assembly horizontally on a series of frames equipped with ball bearing trunnions to permit frictionless rotation of the mast.

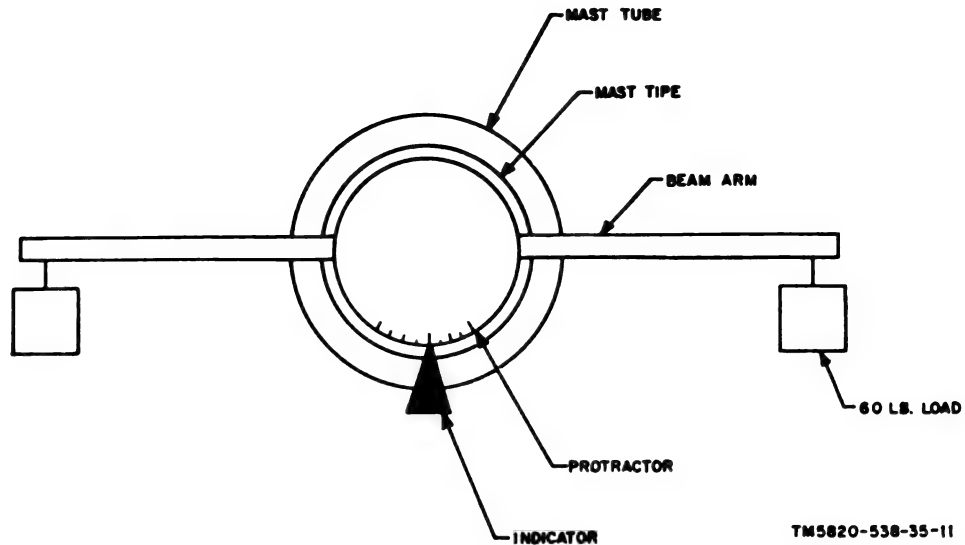
- b. Anchor one end of the mast to a vertical steel beam.

- c. At the second end, attach the antenna adapter to the mast section with a coupling.

- d. Position a 10-foot beam with the protractor scale in the slots in the antenna adapter with the indicator directly under the protractor scale.

- e. Attach a 60-lb weight to the right end of the beam. The angular displacement should be less than 4°.

- f. Switch the 60-lb weight to the left end of the beam. The angular displacement should be less than 4°.



TM5820-538-35-11

*Figure 3-2. Torsion transfer test setup.*

### 3-9. Bending Test (fig. 3-3)

- a. Connect two mast sections with a coupling.
- b. Suspend the coupled mast sections in a cradle with both ends free to rotate as shown.
- c. Measure the heights of the mast sections above the base.
- d. Attach the dynamometer and turnbuckle as shown.

e. Tighten the turnbuckle until a reading of 1240 is obtained from the dynamometer.

f. Loosen the turnbuckle, and measure the height of the mast sections above the base.

g. The difference in measurements between c and f above should be less than 1/2 inch.

*Note.* To avoid any deflection caused by friction, rotate the mast sections 180° and apply a slight pressure to break the friction between the mast ends and the coupling.

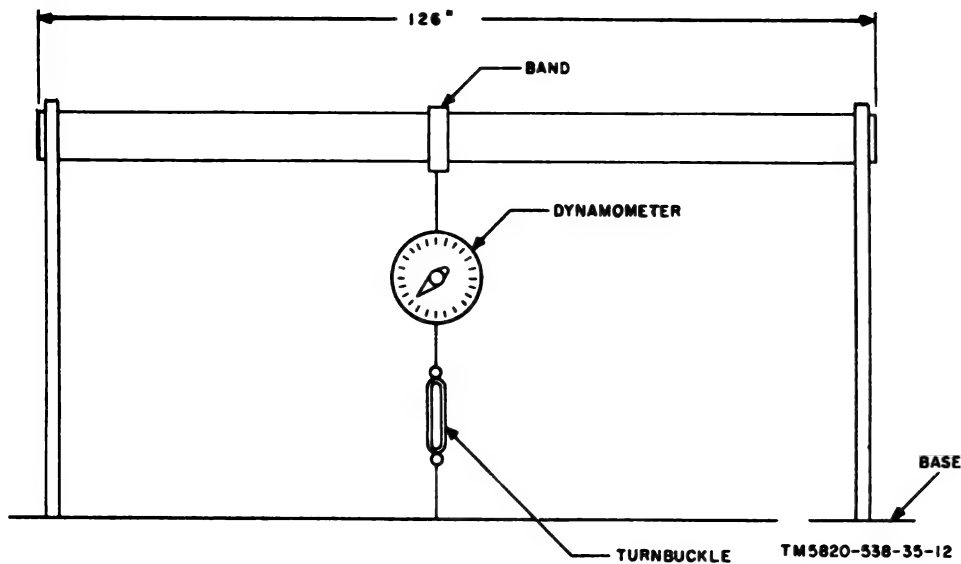


Figure 3-3. Bending test setup.

### 3-10. Guy Assembly Test

- a. Check the snaphook to make sure the locking tongue has tension.
- b. Check to see that the rope thimbles are in the swaging sleeves.
- c. Check the cable for fraying, and see that it moves freely through the snubber.
- d. Check to see that the nut (12, fig. 2-7) turns easily.
- e. Check to see that the latch (11) uncouples from the cam handle (10) and that the cam handle swings freely.

### 3-11. Elevator, Handcrank, and Winch Assembly Tests

Turn the handcrank clockwise and counter-clockwise. The handcrank should turn without binding. The elevator should move smoothly up and down. If there is any trouble, refer to paragraph 2-4b and c.

### 3-12. Miscellaneous Parts Test

- a. Make sure that the radius rope (3, fig. 1-1) is 81 feet long  $\pm 2$  inches and that there is no fraying.
- b. Check to see that the couplers (6) are not bent and they open and close with pressure.
- c. Check to see that the top guy attachment (7) is not bent or damaged. The inside diameter should be 2.700 inches.
- d. Check to see that the middle guy attachment (4) is not bent or damaged. Remove the pin, and make sure that the guy attachment opens freely.
- e. Examine the bung (spanner) wrench (5) for bends and broken or bent pins.
- f. Examine the cotton duck bag (1) and the canvas tools and accessories roll (1, fig. 1-2) for tears.

## **APPENDIX**

### **REFERENCES**

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The following is a list of applicable publications which are available to the DS, GS, and depot maintenance personnel of Mast AB-577/GRC:

<b>DA Pam 310-4</b>	<b>Index of Technical Manuals, Technical Bulletins, Supply Manuals, (types 7, 8, and 9) Supply Bulletins, and Lubrication Orders.</b>
<b>DA Pam 310-7</b>	<b>U. S. Army Equipment Index of Modification Work Orders.</b>
<b>SC 5180-91-CL-R07</b>	<b>Tool Kit, Electronic Equipment TK-105/G (FSN 5180-610-8177).</b>
<b>SM 11-4-5180-S21</b>	<b>Tool Kit, Electronic Equipment TK-100/G.</b>
<b>TB SIG 355-1</b>	<b>Depot Inspection Standard for Repaired Signal Equipment.</b>
<b>TB SIG 355-2</b>	<b>Depot Inspection Standard for Refinishing Repaired Signal Equipment.</b>
<b>TB SIG 355-3</b>	<b>Depot Inspection Standard for Moisture and Fungus Resistant Treatment.</b>
<b>TB SIG 364</b>	<b>Field Instructions for Painting and Preserving Electronics Command Equipment.</b>
<b>TM 11-5820-538-12</b>	<b>Operator and Organizational Maintenance Manual Including Repair Parts List: Mast AB-577/GRC and Extension Kit, Mast MK-806/GRC.</b>
<b>TM 11-5820-538-35P</b>	<b>DS, GS, and Depot Maintenance Repair Parts and Special Tool Lists: Mast AB-577/GRC and Extension Kit, Mast MK-806/GRC.</b>
<b>TM 88-750</b>	<b>Army Equipment Record Procedures.</b>



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